

Rapid Lesson Sharing

Event Type: Blasting a Hazard Tree

Date: July 13, 2015

Location: Rogue River-Siskiyou
National Forest



*All agreed it would be
a high-risk operation.*

NARRATIVE

The Grey Fire, ignited by lightning, was located approximately 150 feet downhill from a Forest Service road in heavy timber with a brush component understory. Due to the high elevation, fuel type and recent moisture, ground fire spread was not an issue.

Initial Attack resources arrived on scene to find an 82-inch diameter green Douglas fir with active fire from the middle to top of the tree. Only a small area of ground-fire existed around the tree.

The Type 4 Incident Commander identified the ground fire area as highly hazardous to personnel due to fall-out from the burning tree. Given the current fuels and weather conditions, the burning tree had “low” or “no spread” potential. The IC requested an agency Class C Faller, even though he felt that it was most likely not hand felleable.

Three Class C Fallers looked at the tree. All agreed hand felling was not an option, they declined the falling operation.

Due to fall-out primarily on one side of the tree, it was not possible to safely double-cut (work from both sides of the tree). In addition, a 42-inch or greater bar length would be needed—and was not available on site. In discussion with the District Duty Officer, it was decided to monitor the tree and ground fire.

The next day, a fourth Class C Faller visited the tree and concurred with the previous size-ups. He also observed some additional concerns:

- 1) Each time anyone walked into the area, an exposure to the overhead hazards was being accepted.
- 2) It was extremely difficult to determine the extent of fire in the tree and how long—if left standing—it would burn.
- 3) If a failure occurred at the tree’s base, a slight chance existed that it could fall and reach the nearby road.

Due to these concerns, blasting was suggested as an option. After a short discussion with the Duty Officer, an order was placed for a regional blasting team. Given the lack of urgency or potential for fire spread, the order was placed for the morning of day 4—two days later—to allow for adequate preparation.



This RLS tells the story of the decisions that were made that led to these folks successfully getting this hazard tree onto the ground.



Blasting Day Actions

The tree was measured at 82 inches in diameter at breast height (DBH) and may have reached 160 feet tall. However, after one fork and the top of the remaining fork burned off and fell to the ground, the remaining tree height was approximately 100 feet. Most of this activity transitioned slowly within the first 48 hours.



On the blasting day, small amounts of debris fell during the blasting preparation, mostly on the tree’s off-side. The off-side was also where all of the tree’s large parts and pieces had fallen during the first 48 hours.

While the advantage to this explosive is that it is very unlikely to ignite the surrounding vegetation on fire, it’s effectiveness at blasting trees was unknown.



A previously untested Water Gel (water base) explosive was used that had not previously been deployed on this size or species of tree. While the advantage to this explosive is that it is very unlikely to ignite the surrounding vegetation on fire, it’s effectiveness at blasting trees was unknown.

The following resources were assigned for the blasting operation:

- 1 Type 4 IC
- 3 Blasting Trainees
- 1 Region 6 Blaster Examiner
- 1 Task Force Leader (assigned to document operation)
- 1 Type 2 IA Crew
- 2 Type 6 Engines



Chronology of Blasting Day

0700-1030 District and out of area IA support resources were briefed and organized for the operation. Blasting Team arrived and all resources traveled to the area.

1140 Onsite briefing was conducted by Lead Blaster with all assigned resource leads. Specific detail was included as many were unfamiliar with blasting operations.

1154 Bark removal began - 25 minutes were spent at the base (approximately 6-8 minutes were spent removing a piece of wood that had bound the chain. See “Observations”)





1145 The Lead Blaster gave a pre-blast/charge setting briefing. The four then returned to the road to prepare the charges.

1300 Explosives preparation was complete.

1305 Lead Blaster gave charge setting briefing.

1307 All four returned to the tree to set the charges.

1310 Began setting charges on the tree. As this was being utilized for training purposes, a little more time was spent at the base with all three trainees. In all, 20 minutes was spent at the base.

1330 Base of tree charge setting was complete. Following insertion of the blasting cap into the explosive, Blasting 1 was called out on Tac Channel to all guards.

1346 The Blasting caps were connected to the blasting machine and Blasting 2 was announced on Tac channel to the guards.

1350 Once the Blasting Team and recorder had retreated to a safe location they began the firing sequence. Blasting 3 was announced on Tac channel.

1401 Blasting of blasting 4 was called out—and followed by a big boom.

1402 Lead Blaster and one trainee returned to conduct the post blast hazard inspection.

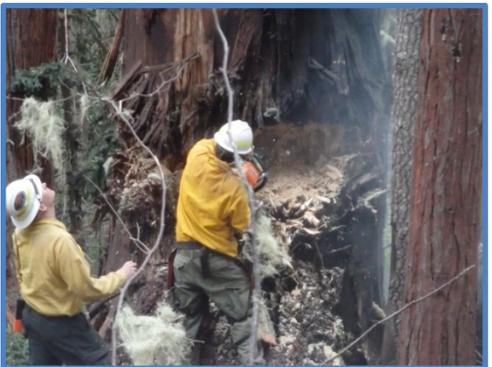


First Blast Fails to Drop Tree

The blast did not transition the tree to the ground. However, it did create two holes in the tree's base, splintered 30-40 feet up one side. **(See photos.)**

Although the tree shook violently, very little transitioned to the ground. The post inspection also determined that the tree was still stable enough to initiate a second blast.

Utilizing one of the created cavities, it was enlarged with a chainsaw to accommodate explosives for more of an internal load. **(See photos.)**



1425 Chainsaw preparation for a second set was begun. 10 minutes was allowed—and timed—to deepen one hole from the previous blast to accommodate a new set of explosives.

1516 Blasting 1 was called

1525 Blasting 2 was called

1526 Blasting 3 was called

1527 Blasting 4 was called—with no boom heard



1528 Lead Blaster and one trainee returned to the detonator to diagnose the problem.

1538 Blasting 3 was called.

1539 Blasting 4 was called—and followed by a big boom then a slight thud.

1540 The Lead Blaster and one trainee returned for the post blast hazard inspection.

1550 With the tree on the ground, the Lead Blaster returned the site to the IC for suppression efforts to continue.



The second blast was successful in transitioning the entire tree to the ground.

OBSERVATIONS

- ✓ The Initial Attack resources demonstrated excellent hazard recognition and followed with the decision to disengage. This was completely supported by the District Duty Officer.
- ✓ In terms of potential fire spread, it was recognized that a slow operation pace could be employed. (For instance, ordering the blasters to arrive two shift days out.)
- ✓ Regional pre-planning of having a blaster on call for the fire season worked. Following a late afternoon call, the Region 6 Blaster Examiner made contact with the District Duty Officer that evening.
- ✓ It was the opinion of two seasoned Class C fallers that if felling by hand had been conducted it would have been a minimum of 30 minutes at the base for the most experienced faller (professional or agency).
- ✓ According to the Lead Blaster, Gel explosives should be placed internally.
- ✓ During chainsaw operations, if a mechanical issue or chain jam occurs, the cutter should move away from the base of the tree to make corrections.
- ✓ Assure the correct bar length for the operation is utilized. In this case, a 24-inch bar was used. A 36-inch or longer bar would have made the task easier and possibly quicker.
- ✓ Always be aware of overhead hazards and do not become “comfortable” in the danger zone as operations progress.
- ✓ Provide good communications between Incident Commander and blasters to ensure that the Incident Commander is better informed on the progress of operations.

**This RLS Submitted by:
Incident Overhead**

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